

What is claimed is:

1. A device for delivering fluid to a patient, comprising:

an exit port assembly adapted to connect to a transcutaneous patient access tool;

a dispenser for causing fluid from a reservoir to flow to the exit port assembly;

a local processor connected to the dispenser and programmed to cause a flow of fluid to the exit port assembly based on flow instructions;

a wireless receiver connected to the local processor for receiving flow instructions from a separate, remote control device and delivering the flow instructions to the local processor; and

a housing containing the exit port assembly, the dispenser, the local processor, and the wireless receiver;

wherein the housing is free of user input components for providing flow instructions to the local processor.

2. A device according to Claim 1, wherein the flow instructions cause a predetermined rate of fluid flow for a predetermined period.

3. A device according to Claim 2, wherein the predetermined rate of fluid flow comprises a basal rate.

4. A device according to Claim 1, wherein the flow instructions cause a predetermined volume of fluid to flow for a predetermined period.

5. A device according to Claim 4, wherein the predetermined volume comprises a bolus volume.

6. A device according to Claim 1, wherein the local processor is programmed to cause a flow of fluid comprising pulse volumes.

7. A device according to Claim 1, further comprising at least one user interface component accessible from an exterior of the housing for occluding flow to the exit port assembly.

8. A device according to Claim 1, further comprising a power supply for supplying electrical power to the local processor.

9. A device according to Claim 8, wherein the power supply is integrated with the device.

10. A device according to Claim 8, wherein the power supply comprises a replaceable battery.

11. A device according to Claim 1, wherein the receiver utilizes radio frequency signals.

12. A device according to Claim 1, further comprising a transmitter connected to the local processor for transmitting information from the local processor to a separate, remote control device.

13. A device according to Claim 12, wherein the housing is free of user output components for providing information from the local processor.

14. A device according to Claim 1, wherein the exit port assembly includes a Luer connector.

15. A device according to Claim 1, further comprising a transcutaneous patient access tool connected to the exit port assembly.

16. A device according to Claim 15, wherein the transcutaneous patient access tool comprises a tubular member.

17. A device according to Claim 16, wherein the tubular member is adapted for residing in subcutaneous tissue of a patient.

18. A device according to Claim 17, wherein the tubular member comprises a rigid needle.

19. A device according to Claim 15, wherein the transcutaneous patient access tool comprises micropenetrators.

20. A device according to Claim 1, further comprising a reservoir, and the dispenser controls fluid flow from the reservoir to the exit port assembly.

21. A device according to Claim 20, wherein the reservoir contains a therapeutic fluid.

22. A device according to Claim 20, further comprising a fill port connected to the reservoir.

23. A device according to Claim 20, wherein the reservoir is made of a flexible material and collapses as emptied.

24. A device according to Claim 20, wherein the reservoir is thermally insulated.

25. A device according to Claim 20, wherein the reservoir is pressurized.

26. A device according to Claim 25, further comprising a spring compressing the reservoir.
27. A device according to Claim 20, further comprising a second reservoir connected to the exit port assembly.
28. A device according to Claim 20, further comprising:
 - an expandable bolus accumulator connected to the reservoir; and
 - at least one user interface component accessible from an exterior of the housing for opening fluid flow between the bolus accumulator and the exit port assembly.
29. A device according to Claim 1, wherein the dispenser includes an expandable accumulator, an inlet valve controlling flow from a reservoir into the accumulator and an outlet valve controlling flow between the accumulator and the exit port assembly.
30. A device according to Claim 1, wherein the dispenser comprises a pump for pumping fluid from a reservoir to the exit port assembly.
31. A device according to Claim 1, further including at least one sensor connected to the local processor and comprising at least one of an occlusion detector, a reservoir volume transducer, a reservoir empty detector, a leak detector, a pressure transducer, a fluid contact detector, an impedance monitor, a voltage detector, a photodetector, and a vibration monitor.
32. A device according to Claim 1, further comprising an alarm connected to the local processor.
33. A device according to Claim 1, further comprising adhesive on an exterior of the housing.

34. A device according to Claim 33, wherein the adhesive is provided in at least one continuous band surrounding the exit port assembly.

35. A device according to Claim 1, wherein the exit port assembly is mounted in a recessed portion of the housing.

36. A device according to Claim 1, wherein the housing is flexible.

37. A device according to Claim 36, wherein the housing includes hinge sections.

38. A device according to Claim 1, wherein the housing includes a window.

39. A device according to Claim 1, wherein the housing includes vent holes.

40. A device according to Claim 1, wherein the local processor and the receiver are encapsulated in an electromagnetic shielding material.

41. A device according to Claim 40, wherein the receiver includes an antenna extending out of the electromagnetic shielding material.

42. A device according to Claim 1, wherein the local processor includes programming which can be updated by a remote control device.

43. A system including a fluid delivery device according to Claim 1, and further comprising a remote control device separate from the fluid delivery device and including:

a remote processor;

user interface components connected to the remote processor for allowing a user to provide flow instructions to the remote processor, and

a transmitter connected to the remote processor for transmitting the flow instructions to the receiver of the fluid delivery device.

44. A system according to Claim 43, further comprising a proximity alarm.

45. A kit including a system according to Claim 43, and further comprising a subcutaneous patient access tool for connection to the exit port assembly of the fluid delivery device.

46. A kit according to Claim 45, including a single remote control device, and a plurality of fluid delivery devices.

47. A kit according to Claim 46, wherein each fluid delivery device includes a bar code and the remote control device includes a bar code scanner.

48. A device for delivering fluid to a patient, comprising:

an exit port assembly adapted to connect to a transcutaneous patient access tool;

a dispenser for causing fluid from a reservoir to flow to the exit port assembly;

a local processor connected to the dispenser and programmed to cause fluid flow to the exit port assembly based upon flow instructions, and further programmed to provide flow information;

a wireless transmitter connected to the local processor for transmitting the flow information from the local processor to a separate, remote control device; and

a housing containing the exit port assembly, the dispenser, the local processor, and the wireless transmitter;

wherein the housing is free of user output components for providing the flow information from the local processor to a user.

49. A device according to Claim 48, wherein the local processor is programmed to receive at least some of the flow instructions from a separate, remote control device, and the device further includes a wireless receiver connected to the local processor for receiving the flow instructions from a separate, remote control device and delivering the flow instructions to the local processor.

50. A system including a fluid delivery device according to Claim 48, and further comprising a remote control device separate from the fluid delivery device and including:

a remote processor;

user output components connected to the remote processor for allowing a user to receive flow information, and

a receiver connected to the remote processor for receiving the flow information from the transmitter of the fluid delivery device.

51. A system for delivering a fluid to a patient, comprising:

a) a fluid delivery device for attachment to a skin surface of a patient and including,

an exit port assembly adapted to connect to a transcutaneous patient access tool,

a dispenser for causing fluid from a reservoir to flow to the exit port assembly,

a local processor connected to the dispenser and programmed to cause a flow of fluid to the exit port assembly based at least in part on received flow instructions, and further programmed to provide flow information,

a wireless receiver connected to the local processor for receiving the flow instructions and delivering the flow instructions to the local processor,

a wireless transmitter connected to the local processor for transmitting the flow information from the local processor, and

a housing containing the exit port assembly, the dispenser, the local processor, the wireless receiver, and the wireless transmitter,

wherein the housing is free of user input components for providing flow instructions to the local processor; and

b) a remote control device separate from the fluid delivery device and including,

user input components for receiving user inputs,

user output components for providing user outputs,

a remote processor connected to the user input components and programmed to provide the flow instructions based on the user inputs, and connected to the user output components to provide user outputs based upon the flow information,

a wireless transmitter connected to the remote processor for transmitting the flow instructions to the receiver of the fluid delivery device, and

a wireless receiver connected to the remote processor for receiving the flow information from the transmitter of the fluid delivery device.